

## EXPERIMENT: SALTING THE SOIL

This experiment can be used to support learning for Activity Cards SALINITY, VEGETATION, and LAND USE.

### PURPOSE

To show what happens when germinating seeds are watered with salted water of varying concentrations.

### EQUIPMENT

Note:

- Some aspects of the study are best done by the teacher as a demonstration.
- Results for this experiment will not become evident for several days.
- Children should work in small groups of 2-3 in order to have at least two sets of results for each salt concentration.

(Quantities are for each group of students)

- 20 mung beans per group (one packet will be sufficient for a class)
- One small, flat dish eg. take-away container for each group
- Paper towel
- Cling wrap,
- Rubber bands or tape
- Packet of cooking salt
- Water
- Measuring cup or beaker
- Plastic cup

Shared items include:

- Teaspoon
- Tweezers
- Magnifying glass

### PROCEDURE

Teacher:

- Prepare a salt solution of each of the concentrations below
- Allocate groups their particular salt solution

Amount of salt to add to 250 ml water:

Salt concentration	Salt to add
Sample 1 Tap (control)	none
Sample 2	½ teaspoon
Sample 3	1 ½ teaspoons
Sample 4 (approximate concentration of seawater)	4 teaspoons

Students:

1. Prepare a shallow dish with paper towel (double thickness at least and cut to fit the container) and a label containing information about the salt concentration
2. Moisten paper towels thoroughly with allocated salt concentration
3. Place 20 mung beans on the paper towel, spreading them out evenly
4. Cover with cling wrap secured with rubber band or tape
5. Store beans in a bright cool place away from direct sunlight
6. Photograph each mung bean dish every day, making sure the label is visible.

## RESULTS

Number of germinating seeds:

- Keep a cumulative record of the number of beans that have sprouted each day for each group.
- Record your findings on a table like the one below:

Number of mung beans germinated (cumulative)

Salt concentration	Day 1	Day 2	Day 3	Day 4	Day 5
Sample 1 Tap (control)					
Sample 2					
Sample 3					
Sample 4 (approximate concentration of seawater)					

Compare the results between the samples by graphing them.

Health of germinated plants:

Observe , photograph and record growth of the germinated seeds each day (at the same time each day if possible).

## CONCLUSIONS

Discuss:

Which salt concentration allowed the greatest number of seeds to germinate?

Which salt concentrations did not allow mung beans to sprout at all?

Which seeds grew the most rapidly?

Can the group reach any conclusions about the presence of salt in the water and the difference it makes to the seeds' chances of germinating and growing successfully?

What might the results reveal about the importance of salinity in the environment?

(Hint: average the results, as there will be some seeds in every group which will not germinate.)

## SOLVING THE CRIME

Are there any crime sites where salinity is a problem?

Could any of the victims be harmed by salinity in the crime site where they are found?